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Iranian Elements in Late-Tang Buddhist Astrology

INTRODUCTION

The study and practice of foreign astrology – both Indian and Iranian – became popularized and widespread in Tang-dynasty China during the eighth and ninth centuries. It was integrated into Buddhism and Daoism and exerted an influence on Tang literature. Although foreign astrology as it was practiced by Buddhists in eighth-century China was predominately Indian, by the ninth century it was increasingly a hybrid of Indian and other foreign elements.

One important but understudied specimen of late-Tang Buddhist astrology that demonstrates strong Iranian influences is a work in the Buddhist Taishō canon titled *Qiyao rangzai jue* 七曜攘災決 (*Secrets of Seven-Planet Apotropaism*).¹ It is the focus of this investigation. As I argue below, it was compiled sometime between 806–865 and attributed to a fictional authority, building on the earlier tradition of Indian astrology introduced into China in the mid-eighth century, yet in addition incorporating Chinese features and displaying many Iranian elements.² The text indicates that Buddhists were not averse to using non-Buddhist or even non-Indian systems of astrology. Although the text employs Chinese astronomy, it relies primarily on foreign astrological lore for interpretation. This is a major feature of late-Tang astrology: astrologers made use of foreign lore, but did not attempt to implement foreign systems of observational astronomy. The text furthermore demonstrates

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¹ T 1308, vol. 28. Other extant mss. in Japan are discussed later in this article.

² Iranian here refers to sources written in Middle Persian and Sogdian. As indicated in table 1, below, Sogdian astrology in China used loanwords from Middle Persian. It appears that Sogdian astrology was primarily rooted in the Iranian system of astrology, rather than the Indian.

that the source of foreign astrology and astral magic in the ninth century was increasingly Iranian. In short, *Qiyao rangzai jue* provides sources of cultural, scientific and religious exchange that have often been overlooked by modern scholars. The work serves as a reminder that currents of knowledge within Chinese Buddhism could also stem from non-Indian sources.

This shift towards Iranian sources was, I argue, a result of Persian astronomers who were active at the Chinese court in the late eighth century. Their impact extended into Buddhist communities, suggesting that further work is needed to identify the paths of influence taken by Iranian culture into late-Tang religions.³ Astrology that contained both Hellenistic and Indian elements was widely practiced in Sasanian Iran.⁴ In addition to the practice of astrology, the associated tradition of astral magic, which has its origins in the Greco-Egyptian magical tradition, was also to some extent translated into Chinese and subsequently adopted by Buddhists and Daoists, a connection which effectively linked Tang China with older Near Eastern religions. At present such connections are only beginning to be understood.⁵ Drawing on the findings of earlier studies and correcting several misunderstandings, I will place *Qiyao rangzai jue* within this historical context.

To date, the aforementioned work has attracted the attention of several scholars, but no comprehensive study of the text has been published. Henrik H. Sørensen's survey of Buddhist astrology only briefly mentions it, however it does not discuss Iranian influences.⁶ The text

³ Iranian influences in China also extended into clothing, cuisine, and music throughout the Sui-Tang period. See Ishida Mikinosuke 石田幹之助, *Chōan no haru* 長安の春 (Tokyo: Kōdansha, 1979), pp. 163–205. Ho Peng Yoke has also already noted, “As a general rule, the further back we go towards the eighth century the more easily we can identify imported elements of Hellenistic astrology in Chinese writings.” See Ho Peng Yoke, *Chinese Mathematical Astrology: Reaching Out for the Stars* (London: RoutledgeCurzon, 2003), p. 82.

⁴ David Pingree, *From Astral Omens to Astrology: From Babylon to Bīkāner* (Rome: Istituto Italiano per l’Africa e l’Oriente, 1997), pp. 39–50. For a recent discussion of scholarship on Iranian astrology see Antonio Panaino, “Sasanian Astronomy and Astrology in the Contribution of David Pingree,” in Gherardo Gnoli and Antonio Panaino, eds., *Kayd: Studies in the History of Mathematics, Astronomy and Astrology in Memory of David Pingree* (Rome: Istituto Italiano Per L’Africa E L’Oriente, 2009), pp. 73–103.

⁵ As a noteworthy example of influences in Tang religions from regions beyond India, Peter Yoshirō Saeki identified what appear to be Syriac Christian prayers in the form of transliterated incantations in a Tang Daoist text titled *Lǚzu quanshu* 呂祖全書. See P.Y. Saeki, *The Nestorian Documents and Relics in China* (Tokyo: Maruzen, 1937), pp. 400–7. See also Zeng Yangqing 曾陽晴, *Tangchao Hanyu Jingjiao wenxian yanjiu* 唐朝漢語景教文獻研究 (Taipei: Huamulan Wenhua, 2005), pp. 35–38. See also T. H. Barrett, “Buddhism, Taoism and the Eighth-Century Chinese Term for Christianity: A Response to Recent Work by A. Forte and Others,” *BSOAS* 65.3 (2002), pp. 555–60.

⁶ Henrik H. Sørensen, “Astrology and the Worship of Planets in Esoteric Buddhism of the Tang,” in Charles D. Orzech et al., eds., *Esoteric Buddhism and the Tantras in East Asia* (Lei-

contains rich astronomical elements that have been studied by historians of science Yabuuchi Kiyoshi 薮内清 and Yano Michio 矢野道雄.⁷ Niu Weixing compared parts of the text to an extant horoscope from Dunhuang.⁸ Angela Howard in her discussion of Chinese Buddhist astral magic touches briefly on one set of planetary deity icons described in the text, but does not discuss their probable foreign origin.⁹ Bill M. Mak briefly mentions the work in his discussion of Central Asia and astrology.¹⁰ Although the discussion of *Qiyao rangzai jue*'s astronomical components has been fruitful, there still remain misunderstandings about what the work represents.¹¹ The evolution of foreign astrology in Tang China needs to be understood alongside the history of foreign astronomy in China. Tansen Sen's study gives us a detailed understanding of the Sino-Indian families operating in Chang'an throughout most of the eighth century, and Rong Xinjiang's study examines the career of an eminent Persian astronomer.¹² A recent paper by Mak builds on the studies of Rong and Yano, and identifies the Persians active in China around the year 800 who translated a work of the Hellenistic astrologer Dorotheus of Sidon.¹³

den: Brill, 2011), pp. 230–44.

⁷ Yabuuchi Kiyoshi, *Chūgoku no tenmon rekihō* 中國の天文曆法 (1969; rpt. Tokyo: Heibonsha, 1990), pp. 182–83; Yano Michio, *Mikkyō senseijutsu* 密教占星術 (Tokyo: Tōyōshoin, 2013), pp. 165–87. See also idem, “The Ch'i-yao jang-tsai-chüeh and Its Ephemerides,” *Centaurus* 29.1 (1986), pp. 28–35. Yabuuchi and Yano identified a number of key features of the calendar embedded within the text that will be discussed below, but did not explore the text from a broader historical angle.

⁸ Weixing Niu, “On the Dunhuang Manuscript P.4071: A Case Study on the Sinicization of Western Horoscope in Late 10th Century China,” in John M. Steele, ed., *The Circulation of Astronomical Knowledge in the Ancient World* (Leiden: Brill, 2016), pp. 527–58. In addition, Niu explored astronomical features of the text, but mistakenly stated that it is a “Chinese translation of a Buddhist text” while assuming an Indian monk actually compiled it. However, the text actually reveals a composite nature and rich native Chinese elements. See Weixing Niu, “An Inquiry into the Astronomical Meaning of Rāhu and Ketu,” *Chinese Astronomy and Astrophysics* 19.2 (1995), pp. 259–66.

⁹ Angela Howard, “Planet Worship: Some Evidence, Mainly Textual, in Chinese Esoteric Buddhism,” *Asiatische Studien* 37, no. 2 (1983), p. 116.

¹⁰ Bill M. Mak, “The Transmission of Buddhist Astral Science from India to East Asia: The Central Asian Connection,” *Historia Scientiarum* 24.2 (2015), pp. 67–68.

¹¹ I have already mentioned some of the features of the text in an earlier publication in Japanese. See Jeffrey Kotyk, “Kanjiken no bungaku ni okeru saihō-senseijutsu no yōso: tōzai bunka kōryū ni okeru Bukkyō no yakuwari” 漢字圏の文學における西方占星術の要素, 東西文化交流における佛教の役割, *Bukkyō bungaku kenkyū* 佛教文學研究 19 (2016), pp. 85–110.

¹² Tansen Sen, “Gautama Zhuan: An Indian Astronomer at the Tang Court,” *China Report* 31.2 (1995), pp. 197–208. Rong Xinjiang 榮新江, “Yi ge rushi Tangchao de Bosi Jingjiao jiazhu” 一個入仕唐朝的波斯景教家族, in *Zhongguo Zhongguo yu wailai wenming* 中古中國與外來文明 (Beijing: Sanlian shidian, 2001), pp. 238–57.

¹³ Bill M. Mak, “*Yusi Jing* – A Treatise of ‘Western’ Astral Science in Chinese and Its Versified Version *Xitian yusi jing*,” *SCIAMVS* 15 (2014), pp. 105–69.

In what follows, first of all we look at the relevant historical background in the early history of foreign astrology and court astronomers in China. From there, we turn to the contents of *Qiyao rangzai jue* and discern its key features with a particular focus on those that might have come via an Iranian medium: these include specific astrological methods, the presence of Babylonian “goal-years,” transliterated loanwords, iconography, and the ritual magic which in part can be linked back to the Greco-Egyptian tradition. We conclude by outlining the impact such developments had in China with a focus on specimens from Dunhuang.

HISTORICAL BACKGROUND

The earliest example of Buddhist literature’s providing details pertaining to astrology concerns the work titled *Śārdūlakarṇāvadāna*.¹⁴ The earliest Chinese translation is *Shetoujian Taizi ershiba xiu jing* 舍頭諫太子二十八宿經 (T 1301), which is said to have been translated by Dharmarakṣa 竺法護 (239–316) between 307–313 (the Yongjia 永嘉 era).¹⁵ Another translation of *Śārdūlakarṇāvadāna*, titled *Mātāṅga-sūtra* 摩登伽經 (T 1300),¹⁶ is traditionally attributed to Zhu Lüyan 竺律炎 and Zhi Qian 支謙 in the year 230,¹⁷ but Hayashiya Tomojirō 林屋友次郎 points out that the style of translation clearly postdates Kumārajīva (344–413). He suggests a date sometime after the late fifth century.¹⁸ His argument is supported by an entry in *Datang neidian lu* 大唐內典錄, a sūtra catalog from 664 by Daoxuan 道宣 (596–667) in which Guṇabhadra 求那跋陀羅 (394–468) in the Liu-Song period (420–479) is cited as the translator.¹⁹ The astrology of the text uses an Indian system of *nakṣatra*-lunar convergences.²⁰ This system, however, was not implemented in

¹⁴ Included in the *Divyāvadāna* collection. For printed Sanskrit editions see Edward B. Cowell and Robert Alexander Neil, eds., *The Divyāvadāna: A Collection of Early Buddhist Legends* (Cambridge: Cambridge U.P., 1886); Sujitkumar Mukhopadhyaya, ed., *Śārdūlakarṇāvadāna* (Viśvabharati, 1954); and P. L. Vaidya, ed., *Divyāvadāna* (Darbhanga: Mithila Institute of Post-Graduate Studies and Research in Sanskrit Learning, 1959). For other Sanskrit manuscripts see Bodleian Library 1091(1–8), MS. Sansk.e.23 (P), and British Library Or.15010/6, 20. For Tibetan translations see D 358, Q 1027, N 345, C 997, H 366, J 297, U 359.

¹⁵ T 2149, 55: 298A16–17.

¹⁶ For a comprehensive study see Zenba Makoto 善波周, “Matōga gyō no tenmonrekisū ni tsuite” 摩登伽經の天文曆數について, in *Tōyōgaku ronsō: Konishi, Takahata, Maeda san kyōju shōju kinen* 東洋學論叢, 小西高阜前田三教授頌壽記念 (Kyoto: Heirakuji shoten, 1952), pp. 171–214.

¹⁷ T 2154, 55: 487C20–24.

¹⁸ Hayashiya Tomojirō 林屋友次郎, *Iyaku kyōrui no kenkyū* 異譯經類の研究 (Tokyo: Tōyō Bunko, 1945), p. 541.

¹⁹ T 2149, 55: 298A18–20.

²⁰ An Indian *nakṣatra* and a Chinese *xiu* 宿 are both lunar stations (segments along the lu-

China, which was likely due to the astronomical parameters being different from the Chinese, and moreover there being no need to observe Indian astrology by Chinese Buddhists at the time. Astrological elements are also found within three texts inside a larger collection titled *Mahāsaṃnipāta* 大方等大集經 (T 397), but again it does not seem that anyone practiced such astrology in China.²¹

Chinese interest in foreign astrology, both at court and among Buddhist monks, blossomed from the eighth century onward. It was from early in this century that Mantrayāna was introduced into China. Mantrayāna (Tantric Buddhism) is distinguished from earlier *dhāraṇī* (incantation) practices by the addition of *maṇḍalas* and associated religious consecrations (Skt. *abhiṣeka*; Ch. *guānding* 灌頂).²² This requires consideration of tantric hemerology (the practice of selecting auspicious times). From at least the fifth century there were certain Buddhist writings in China that explained the early Buddhist lunar calendar that was used to schedule days for *poṣadha* (the formal gathering of the sangha according to the vinaya, that is, the monastic codes). It reflects an earlier pre-Hellenized Indian calendar. By the eighth century, Indian traditions had for several centuries been influenced by Hellenistic astrology as well as mathematical astronomy, and some of these developments – such as the seven-day week and zodiac signs – were incorporated into early tantric Buddhism. In China the primary early example of such

nar path). The Indian system is comprised of 27 or 28 segments while the Chinese is strictly 28. Although the Chinese used the *xiu* as functional equivalents when translating the Indian terms, they were still recognized as different. There have been extensive debates over the last century regarding respective origins, with some scholars favoring Indian, Chinese or even Babylonian. The evidence now indicates independent origins. Pankenier recently refuted the longstanding assertion by Assyriologist Carl Bezold, who in 1919 claimed to have found Babylonian influences in early Chinese astronomical texts in translation. This became accepted by influential figures such as Joseph Needham and Edward Schafer. See David W. Pankenier, “Did Babylonian Astrology Influence Early Chinese Astral Prognostication Xing Zhan Shu 星占術?” *Early China* 37.1 (2014), pp. 1–13. The *nakṣatras* are defined by identifying stars, though these were never fixed in perpetuity. See David Pingree and Patrick Morrissey, “On the Identification of the Yogatārās of the Indian Nakṣatras,” *Journal for the History of Astronomy* 20.2 (1986), pp. 99–119.

²¹ These include the following: the **Samādhi-rddhi-pāda* 三昧神足品 chapter of *Ratnaketu-parivarta* 寶幢分; translation attributed to Dharmakṣema 曇無讖 (385–433). Also *Candragarbha-parivarta* 月藏分; trans. Narendrayaśas 那連提耶舍 in 566; and *Sūryagarbha-parivarta* 日藏分, also by Narendrayaśas in 585. For relevant discussion see Zenba Makoto, “*Daishū-kyō* no tenmon kiji – sono seiritsu mondai ni kanren shite” 大集經の天文記事, その成立問題に關連して, *Nihon Bukkyōgakkai nenpō* 日本佛教學會年報 22 (1957), pp. 101–16. Also see Mak, “Transmission of Buddhist Astral Science,” pp. 64–66.

²² There is no consensus concerning the terms Mantrayāna, Esoteric Buddhism and Tantric Buddhism as they relate to East Asia; see Charles D. Orzech et al., “Introduction: Esoteric Buddhism and the Tantras of East Asia: Some Methodological Considerations,” in Charles D. Orzech et al., *Esoteric Buddhism and the Tantras of East Asia* (Leiden: Brill, 2011), pp. 3–18.

literature is the *Mahāvairocana-sūtra* 大日經 (T 848), which was translated in 724 by Śubhakarasiṃha 善無畏 (637–735) with the assistance of the Chinese astronomer monk Yixing 一行 (683–727). In the second chapter we read the following:

... on the morning of a propitious day, having determined a day on which the time, lunar mansion, and planets are all in harmony, and at a time before the [morning] meal with an auspicious sign ...²³ 遇良日晨, 定日時分宿直諸執皆悉相應, 於食前時值吉祥相者。

There is no definition provided of what constitutes a propitious day, though presumably this would have been generally understood by Indian Buddhists. However, the Indian model of tantric hemerology would not have been immediately understood by Chinese readers. Many such points remained unclear and thus Yixing penned a commentary on the text based on the recorded remarks of Śubhakarasiṃha – this is titled *Dari jing shu* 大日經疏 (T 1796) – written between 724 and 727.²⁴

Here we should note that Osabe Kazuo 長部和雄 questioned Yixing's authorship of the commentary on the basis that it is not mentioned in Tang catalogs and biographies, and other issues such as its complex history of recensions in China and Japan.²⁵ There is a revised version of the commentary called *Dari jing yishi* 大日經義釋 (X 23), which in Japan has traditionally been attributed to Zhiyan 智儼 (d.u.) and Wengu 溫古 (fl. 723), but this attribution has also been called into question by Shimizu Akisumi 清水明澄 due to problematic statements in the preface (Wengu in the preface states he could not examine the original Sanskrit, yet the revised commentary does consult the Sanskrit) and other concerns such as early references to the preface's being a separate text.²⁶ So far as the section on astrology is concerned, however, it represents a phase preceding later developments in which vocabulary was standardized. For example, it refers to the zodiacal houses as *fang*

²³ The English trans. is *Vairocanaḥśambodhi Sūtra*, trans. Rolf W. Giebel (Berkeley: Numata Center for Buddhist Translation and Research, 2005), p. 19. (T 848, 18: 4c4–5.)

²⁴ The commentary includes explanations from both men, though it does not specify the speaker. Some effort has been made to discern which content belongs to whom. See Kameyama Takahiko 龜山隆彦, “Dainichikyō sho ni okeru senryakushaku shinpishaku ni tsuite” 大日經疏における淺略釋, 深祕釋について, *Indogaku Bukkyōgaku kenkyū* 印度學佛教學研究 56.1 (2007), pp. 169–72.

²⁵ Osabe Kazuo, “Dainichikyō no sensha to gishaku no saijisha ni kansuru gimon” 大日經疏の撰者と義釋の再治者に關する疑問, *Mikkyō bunka* 密教文化 27 (1954), pp. 40–47.

²⁶ Shimizu Akisumi, “Tōdo ni okeru Dainichikyō chūshakusho no seiritsu katei: Onkojo wo chūshin toshite” 唐土における大日經注釈書の成立過程, 溫古序を中心として, *Mikkyō bunka* 221 (2008), pp. 49–72.

房 (“chambers”) rather than *gong* 宮 (“palaces”) which became standard in later literature. Ketu 計都 is translated as “banner 旗,” which is understood as meaning “comet 彗星.”²⁷ This is an earlier Indian definition that stands in contrast to its later function as a planet representing either the descending node of the moon or the lunar apogee (see below). The details all seem appropriate if one assumes they come from the Indian figure of Śubhakarasiṃha resident in China in the early part of the eighth century. In other words, there is nothing anachronistic or problematic that would lead one to conclude that this section of the text is not, as traditionally believed, the words of Śubhakarasiṃha written down and slightly elaborated upon by Yixing.²⁸

The commentary briefly describes the Indian lunar calendar, but leaves much unexplained. For instance, it mentions the seven-day week, twelve zodiacal houses or signs, twenty-seven *nakṣatras* and that the day is comprised of thirty *muhūrtas*,²⁹ each with a unique quality. It states that these various calendrical elements all have hemerological qualities to be considered, but stops short of describing them. It is stated that the Indian calendar does describe them.³⁰ For Buddhist clerics in Chang’an with access to Indian astronomers and monks, this would have been less problematic, but as the number of Chinese monks involved in Mantrayāna grew, they would have presumably wanted accessible materials in Chinese to determine an astrological schedule for themselves.

It was Amoghavajra 不空 (705–774) who first substantially addressed this concern with his compilation of *Xiuyao jing* 宿曜經 (T 1299). If tentatively rendered into Sanskrit, this abbreviated title would be **Nakṣatra-graha-sūtra*, i.e., “Sūtra on Constellations and Planets” – however, there is no known parallel Sanskrit or Tibetan version of the text. Its longer title has several Chinese variants. The full title in the Taishō canon reads *Sūtra on Mañjuśrī Bodhisattva and the Sages’ Teaching on Auspicious and Inauspicious Times, Good and Evil Constellations and Planets* 文殊師利菩薩及諸仙所說吉凶時日善惡宿曜經. The text is therefore nominally Buddhist, being attributed to Mañjuśrī and sages (*ṛṣi*?), though a survey of the text reveals surprisingly few characteristically Buddhist features. It is an astrology manual that teaches to Chinese readers the

²⁷ T 1796, 39: 616C18–619A12.

²⁸ An item in *Gishaku mokuroku* 義釋目錄 by Enchin 圓珍 (814–891) includes a “*Fanwen Piluzhena chengfo jing chaoji*” 梵本毗盧遮那成佛經抄記 (X 438, 23: 299B21). This appears to have been notes for the Sanskrit *Mahāvairocana-sūtra*.

²⁹ A *muhūrta* is 48 modern minutes.

³⁰ “As it is explained in the Indian calendar 如梵曆中說.” T 1796, 39: 618A17.

basics of natal and electional astrology,³¹ plus an astrological schedule based primarily on Indian models. Although it details the zodiac signs, which is an example of naturalized Hellenistic elements in the Indian tradition, it does not teach horoscopy or other advanced features of Hellenistic astrology.

According to the preface of the text, it was translated by Amoghavajra, but a reading of the text has one conclude that it is a compilation of various otherwise disconnected Indian materials that were brought together by Amoghavajra. It is unclear whether these materials had already been translated.³² The first version of it was compiled with the assistance of Shi Yao 史瑤 (d.u.) and completed in 759. The result proved problematic for Chinese readership and consequently the work was revised with running comments inserted into the text by Yang Jingfeng 楊景風 (d.u.) in 764. Both versions were later combined into one text.³³ It is noteworthy here that neither of these assistants to Amoghavajra appear to have been monks. This also explains why the Chinese of the text itself is more literary and polished rather than reading like a Buddhist translation.³⁴

It seems that no major commentaries were written on *Xiuyao jing* in China – at least none is extant – although a revised edition in seven fascicles with an appended “year listing 年記” (ephemerides) by a certain An’ai 安礙 is mentioned alongside related astrological works in a

³¹ Natal astrology deals with predictions about the fate and personality of an individual based on the arrangement of the sky at birth. Electional astrology determines the opportune time to do something in the present or future, based on astrological considerations.

³² As I pointed out in an earlier study, there were three separate translations (all nonextant) of Indian astrological texts done during the 6th and early-7th cc., one probably *Gārgī ya-jyotiṣa*. It is plausible that Amoghavajra drew material from them. See Kotyk, “Kanjiken no bungaku ni okeru,” pp. 104–5. Also in 719, the country of Kapiśā 罽賓國 sent an envoy to the Tang court offering as tribute an astronomical text (*tianwen jing* 天文經). See *Jiu Tang shu* 舊唐書 (Zhonghua edn.) 198, p. 5309.

³³ The original preface to the text mentions these two versions: “Now this scripture includes two versions. The first is the version Shi Yao first penned. The second the revised edition by Yang Jingfeng. 今此經文見有兩本，一是史瑤初筆受本，二是楊景風再加修注本。” Wakita Bunshō 脇田文紹, ed., *Sukuyō-kyō shukusatsu* 宿曜經縮刷 (Nagoya: Wakita Bunshō, 1897) 1, p. 4.

³⁴ The recension in the Taishō (T 1299) is not the original version of the work. See Yano, *Mikkyō senseijutsu*, 226–64. The extant textual transmissions of *Xiuyao jing* are either from China or Korea or are Japanese manuscripts traceable to Kūkai 空海 (774–835), who returned to Japan with a copy in 806. It was also brought back by Tendai monks Ennin 圓仁 (794–864) in 847 and Enchin in 858. These differences were noticed in the Edo period (1603–1868) by the monk Kakushō 覺勝 at Kōyasan 高野山; he compared multiple available versions and compiled an authoritative edition published in 1736 titled *Sukuyō yōketsu* 宿曜要訣. This was printed in modern typeset by Wakita Bunshō 脇田文紹 in 1897 as *Sukuyō-kyō shukusatsu* 宿曜經縮刷. The latter was included in *Shukuyōgyō uranai shinden* 宿曜經占真傳 (Kyoto: Kichūdō, 1908), a compilation with modern commentary by Wakahara Yukitsune 若原敬經 (1854–1926).

catalog of texts by Tendai monk Annen 安然 (841-?).³⁵ Apparently, in the early-ninth century, *Xiuyao jing* was important enough that Kūkai felt it necessary to transmit it to Japan and insist on its implementation, which perhaps stemmed from what he had been directly taught in Chang'an. His biographical materials, the *Kōya Daishi go kōden* 高野大師御廣傳 and *Kōbō Daishi go den* 弘法大師御傳, report that calendar specialists in Japan at the time were unaware of such an astrological schedule, in particular the concept of Sunday:

Before the Daidō reign era [806–810], calendar experts did not know of Sunday. This is why there was confusion about astrological fortune. People often violated this. After the Great Master returned to court, he transmitted this practice.³⁶ 大同以往曆家無知密日。是故日辰吉凶雜亂，人多犯之，大師歸朝之後，傳此事。

This suggests that between 764, when Amoghavajra's *Xiuyao jing* was completed, and 806, when Kūkai returned to Japan, Amoghavajra's system had already been widely adopted by Mantrayāna practitioners in China, and consequently Kūkai was instructed on its importance, which was not yet known in Japan. Some of its content is also reproduced in *Qiyao rangzai jue*, highlighting its continued circulation in China within the Mantrayāna community.

Xiuyao jing details most of what the aforementioned commentary by Śubhakarasiṃha and Yixing briefly mentions yet fails to describe in detail. However, like the *Mahāvairocana-sūtra* commentary, the running commentary in *Xiuyao jing* by Yang Jingfeng also alludes to more advanced systems of astrology that require “Indian calendrical science 天竺曆術” for determining the exact positions of the planets. Details and methods are not provided, but the resident Sino-Indian astronomers resident at the Tang court – the Kāśyapas 迦葉, Gautamas 瞿曇 and the monk Kumāra 俱摩羅 – are mentioned, a fact which seems to assume an elite urban readership.³⁷

The pressing need for astrological knowledge and methods is alluded to in another work under Amoghavajra's name. The **Parṇaśabarī-bodhisattva-sūtra* 葉衣觀自在菩薩經 (T 1100) has the following:

³⁵ 新撰宿曜經七卷 (加年記一卷安礙述); T 2176, 55: 1127C2; apparently nonextant.

³⁶ *Kōya Daishi go kōden* 高野大師御廣傳, fasc. 2., in Hanawa Hokiichi 塙保己一, ed., *Zoku gunshoruijū* 續群書類從 8 (Tokyo: Zoku Gunshoruijū Kanseikai, 1958), p. 661.

³⁷ Wakita, *Sukuyō-kyō shukusatsu*, vol. 1, p. 29. Here the character *seng* 僧 appears before the name of Kumāra 俱摩羅, indicating he is a monk, but in the Taishō edition of *Xiuyao jing* the name was rendered as 拘摩羅, *seng* 僧 having been omitted (T 1299, 21: 391C4). The monk Kumāra is mentioned in *Jiu Tang shu* 34, p. 1265, as having taught a method for predicting solar eclipses.

Whether king, man or woman, [some] will be difficult to raise and nourish – some will have short lifespans, bound in illness and at unease with sleep and eating. All is due to past karma and causes-conditions, being born under a bad constellational convergence.³⁸ Some often have their birth *nakṣatra* intruded upon by the five planets, making them uneasy.³⁹ 若國王男女，難長難養，或短壽疾病纏眠，⁴⁰ 寢食不安，皆由宿業因緣，生惡宿直。或數被五曜陵逼本宿，令身不安。

An individual's illnesses are attributed to past life-karma, but here astrological determinism is tied in: negative karma results in being born under unfortunate astrological circumstances. A person's natal *nakṣatra* might additionally be subject to harmful intrusions by the planets, resulting in ill health and calamities, but again to know these details requires a degree of astrological knowledge and a means to determine planetary positions. Given the popularity of Mantrayāna and Amoghavjara's status as an eminent Buddhist master, it is reasonable to assume that many people – elites and commoners alike – felt compelled to know the astrological circumstances of their own birth and life, and subsequently to take measures to deflect undesirable influences through the use of rituals and mantras.⁴¹ This was another element that initiated the widespread interest in foreign astrology starting from the late eighth century.

One problem that initially limited popularization of astrology was the legal restrictions on the private study and possession of astronomical works. These were forbidden in the formal law codes of the early Tang as detailed in *Tang lü shuyi* 唐律疏議 (specifically item #110 in fascicle 9) from 653. These restrictions followed precedents established by earlier regimes, but as Susan Whitfield has discussed, laws restricting printed almanacs in the ninth century were not necessarily universally enforced.⁴² The An Lushan rebellion (755–763) undermined the authority of the central government and its ability to enforce its own laws and subsequently the door opened to accessible calendars suitable for astrology, and this is exactly what unfolded. The official history *Xin wudai shi* 新五代史 (covering post-Tang regimes) states the following:

³⁸ This refers to a convergence between the moon and an unfavorable *nakṣatra*.

³⁹ T 1100, 20: 448B11–13.

⁴⁰ Read *mian* 眠 as *mian* 綿.

⁴¹ On the dominating influence of Mantrayāna figures in the 8th c., esp. related to the competing Chan school, see John McRae, *Seeing Through Zen: Encounter, Transformation, and Genealogy in Chinese Chan Buddhism* (Berkeley, Cal.: U. California P., 2003), pp. 69–70.

⁴² Susan Whitfield, "Under the Censor's Eye: Printed Almanacs and Censorship in Ninth-Century China," *British Library Journal* 24.1 (1998), p. 9.

During the Jianzhong reign-era [780–783] of the Tang, the diviner Cao Shiwei first changed the old methods, having Xianqing 5 [660] as the epoch of the calendar and *yushui*⁴³ as the start of the year, calling [this work] *Futian li*. However, it was considered a lesser calendar and only circulated among commoners.⁴⁴ 唐建中時，術者曹士蔦始變古法，以顯慶五年爲上元，雨水爲歲首，號符天歷。然世謂之小歷，祇行於民間。

This calendar with ephemerides (tables of monthly planetary positions) became essential to Chinese and Japanese practitioners of horoscopic astrology and, as will be discussed below, is also an integral part of *Qiyao rangzai jue*. Cao Shiwei initially only drafted it with the “seven planets” (sun, moon and five visible planets), but later drafted an additional set of ephemerides for Rāhu and Ketu in or around 806 (see below).⁴⁵

By the late-eighth century the Chinese had access to a calendar and astrological lore required for advanced astrology. This interest was initially motivated by the gradual introduction of increasingly advanced astrology on the part of Mantrayāna. By the turn of the ninth century both astrology and Mantrayāna were becoming popularized and accessible to commoners.⁴⁶

The final major introduction of foreign astrology in the Tang occurred around 800 when a Hellenistic astrology manual – *Duli yusi jing* 都利聿斯經 [**Dorotheus*]⁴⁷ – was brought to China and translated. *Xin Tang shu* 新唐書 has the following entry in its catalog of texts:

Duli yusi jing. 2 fascicles. In the Zhenyuan period (785–805) the *duli*⁴⁸ diviner Li Miqian transmitted it from Western India. There

⁴³ One of twenty-four solar terms 二十四節氣, a term being derived from the position of the sun.

⁴⁴ *Xin Wudai shi* 新五代史 (Zhonghua edn.) 58, p. 670.

⁴⁵ Rāhu and Ketu are “hidden planets” originally proposed in India. In reality they are significant astronomical points in the sky treated as planets. Rāhu is the ascending node of the moon, and Ketu the descending node, or in a rare case lunar apogee. See below.

⁴⁶ The popularization of astrology is evident in the literary record. For a survey on the influence of foreign astrology in Tang poetry, see Chan Man Sing 陳萬成, “Du Mu yu xingming” 杜牧與星命, *Tang yanjiu* 唐研究 8 (2002), pp. 61–79. See also Kotyk, “Kanjiken no bungaku ni okeru,” pp. 93–96.

⁴⁷ Yano proposed this was a transliteration of Ptolemaios (Ptolemy), but Mak demonstrates that the text’s fragments indicate content connected to Dorotheus. The title is thus likely a transliteration of the latter, though from a language other than Greek, such as Middle Persian or Syriac. See Yano, *Mikkyō senseijutsu*, 160–64. Mak, “*Yusi jing*,” p. 129. The “Baxter-Sagart 2011” Middle Chinese pronunciation is reconstructed as *tu lijH ywit sje*, following “The Digital Etymological Dictionary of Old Chinese”: <http://edoc.uchicago.edu/>.

⁴⁸ *Duli* here is an abbreviation of *Duli yusi jing* 都利聿斯經.

was Qu Gong who translated the text.⁴⁹ 都利聿斯經二卷, 貞元中, 都利術士李彌乾傳自西天竺, 有璩公者譯其文。

Although the text is only presently extant in fragments, Mak's study of its extant fragments and versified version (titled *Xitian yusi jing* 西天聿斯經) concludes that the original work was a translation of a version of Dorotheus' *Carmen Astrologicum*,⁵⁰ which was brought to China by East-Syrian (Nestorian) Christians. He concludes that *Xitian yusi jing* "bears a close resemblance to the work of Dorotheus and not of Ptolemy."⁵¹ He further identifies the likely translator of the work as having been Li Su 李素 (743–817), a Chinese court astronomer of Persian descent.⁵² Li Su has also been identified by Rong as one of the Nestorian Christian clergymen listed on the "Nestorian Stele" 大秦景教流行中國碑 erected in Chang'an in 781.⁵³ Assuming the work was translated by Christians, the impetus behind the interest in foreign astrology was still the earlier Buddhist developments. *Duli yusi jing* was arguably the most advanced system of astrology to have been introduced from abroad in premodern China given its description of astrological aspects,⁵⁴ among other features. Unlike earlier elements of Hellenistic astrology that had been introduced through Indian and perhaps Iranian intermediaries, this work was wholly Hellenistic. Buddhists and Daoists both took an interest in it, the latter even integrating it into canonical texts.⁵⁵

The introduction and use of Hellenistic materials by figures like Li Miqian and Li Su marks a significant transition in the history of foreign

⁴⁹ *Xin Tang shu* 新唐書 (Zhonghua edn.) 59, p. 1548.

⁵⁰ Dorotheus of Sidon (ca. 75 AD) was a poet and astrologer who wrote five works on astrology. See James H. Holden, *A History of Horoscopic Astrology* (American Federation of Astrologers, 2006), 33–43.

⁵¹ Mak, "Yusi Jing," p. 129.

⁵² His tombstone and that of his wife were unearthed in Xi'an in 1980. In the Dali 大曆 (766–779) era he was summoned to Chang'an to serve in the Bureau of Astronomy 司天台. See Chen Guoying 陳國英, "Xi'an Dongjiao Sanzuo Tang mu qingli ji" 西安東郊三座唐墓清理記, *Kaogu yu wenwu* 考古與文物 (1981–82), pp. 25–31.

⁵³ Rong, "Yi ge shi Tangchao de Bosi Jingjiao jiazuo," 238–57.

⁵⁴ The angles of planets relative to one another in the horoscope from which various predictions are made.

⁵⁵ An example is *Lingtai jing* 靈臺經 (DZ 288), of unknown authorship. It was originally twelve chapters, but the extant version is missing the first eight. It is a manual of horoscopy comprised of Hellenistic, Indian, and Chinese elements. The opening lines of chapter nine define the concept of *triplicity* 三方主 (*Zhengtong Daozang*, Wenwu Chubanshe edn., vol. 5, 22c6–8): a division of the twelve zodiac signs into four even sets of three signs. The three signs are positioned relative to one another to form a triangle (a *trine*; *sanhe* 三合). The same definition is found in Dorotheus' *Carmen Astrologicum*. See David Pingree, *Dorothei Sidonii Carmen astrologicum* (Leipzig: Teubner, 1976), pp. 161–62.

astronomy/astrology in China from Indian to Iranian sources.⁵⁶ Prior to Li Su's appointment, the prominent Gautama family held leading roles in the Bureau of Astronomy in the capital.⁵⁷ One important member was Gautama Siddhārtha, who by imperial decree in 718 translated *Jiuzhi li* 九執曆 (**Navagraha*), a sophisticated text on mathematical astronomy.⁵⁸ His son, Gautama Zhuan 瞿曇 (712–776), was Li Su's predecessor at court.⁵⁹ Other members were involved in the production of the aforementioned *Xiuyao jing*. For reasons unknown, however, it appears that the Persian Li Su was appointed as Gautama Zhuan's successor rather than another member of the Gautama family. His career ushered in a brief time when Iranian and Hellenistic materials related to astrology were made available in Chinese.

In the ninth century foreign astrology was understood by certain poets, such as Han Yu 韓愈 (768–824) and Du Mu 杜牧 (803–852).⁶⁰ This reflects the extent to which such astrology was popularized. At the same time there developed systems of astral magic that were designed to deflect unwanted influences from the planets, especially as they related to an individual's horoscope. Buddhists had at their disposal Sanskrit mantras for the *navagraha* (sun, moon, five visible planets, Rāhu and Ketu). They additionally incorporated worship of the Big Dipper for the purposes of extending longevity, a practice which stems from an indigenous Chinese belief connected to that asterism.⁶¹ It was within such

⁵⁶ Many Persians in China had the surname Li. *Xin Tang shu* 59, p. 1548, also states that he came from "Western India", which although not Persia, is relatively near.

⁵⁷ The work of Indian astronomers in China was perhaps significant enough to attract the attention of certain Arab leaders. Kevin van Bladel argues that "al-Maṣūr [r. 754–775] was made aware that Indian astronomers were working in the Chinese Tang court and that he was, in his interest in Indian astronomy, effectively emulating the prestigious example that the Tang emperors established." See Kevin van Bladel, "Eighth-Century Indian Astronomy in the Two Cities of Peace," in Behnam Sadeghi et al., eds., *Islamic Cultures, Islamic Contexts: Essays in Honor of Professor Patricia Crone* (Leiden: Brill, 2014), p. 264.

⁵⁸ Included as fasc. 104 in the *Da Tang Kaiyuan zhan jing* 大唐開元占經, a work also edited by Gautama Siddhārtha between 718–728. Yabuuchi says that it displays Greek influences: it defines a dot for zero, and provides a table of sine functions and methods for eclipse prediction of greater accuracy than those developed in China. Despite its scientific value, the text had limited influence on official calendars, though it was consulted. Yabuuchi attributes this to both the sino-centric attitude of astronomers in the Tang and also the difficulty of understanding the material itself. For a study and English translation of *Navagraha*, see Yabuuchi Kiyoshi 薮内清, *Zōtei Zui Tō rekihō shi no kenkyū* 增訂隋唐曆法史の研究 (Kyoto: Rinsen Shoten, 1989), pp. 1–42.

⁵⁹ His tomb was unearthed in Xi'an (Chang'an) in May, 1977. For the original report see Chao Huashan 晁華山, "Tangdai tianwenxuejia Judan Zhuan mu de faxian" 唐代天文學家瞿曇曇墓的發現, *WW* 10 (1978), pp. 49–53. For a study see Sen, "Gautama Zhuan," 197–208.

⁶⁰ For a survey on the influence of foreign astrology in Tang poetry see Chan, "Du Mu yu xingming," 61–79.

⁶¹ The main texts of this type are located in the Taishō canon between T 1302–T 1311. See Charles D. Orzech and James H. Sanford, "Worship of the Ladies of the Dipper," in David Gordon White, ed., *Tantra in Practice* (Princeton: Princeton U.P., 2000), pp. 383–95.

a context that *Qiyao rangzai jue* was compiled. Not only does it provide all the astronomical information and astrological lore required to compile and interpret a horoscope, it also has a full range of mantras and rituals to be employed for apotropaic purposes.⁶² As will be discussed below, astral magic includes not only Indian and Chinese components, but also those traceable to Greco-Egyptian magic.

The following analysis of *Qiyao rangzai jue* primarily builds on the findings of Yabuuchi, Yano, Mak, and Rong. Having considered the historical background, we are in a position to discuss the contents of the work and then to identify the Iranian sources.

EDITIONS AND AUTHORSHIP

Qiyao rangzai jue, which I translate as *Secrets of Seven-Planet Apotropaism*,⁶³ is a late-Tang Buddhist astrology manual attributed to a single foreigner, but in reality represents an amalgamation of Chinese, Indian, Iranian, Sogdian and ultimately Near Eastern elements. Although in the past it has been erroneously described as “non-Buddhist,”⁶⁴ it prescribes Buddhist activities such as sūtra recitation and moreover is based on the aforementioned foundation of nominally Buddhist astrology attributed to Mañjuśrī, which was introduced by Amoghavajra in the eighth century, and provides a complete system of natal and electional astrology along with a set of mantras and apotropaic practices to address harmful planetary influences that are identified based on the text’s lore and ephemerides.

The Taishō edition of this text is corrupted in places, but remains quite readable. There are alternative editions extant in private Japanese collections. One manuscript that is freely available is from the Shimoura Collection 下浦文庫 (item no. 13-471) housed at the Tokyo University of Science 東京理科大学.

The work is attributed to a western Indian 西天竺 “Brahmin monk 婆羅門僧” named Jinjuzha 金俱吒. Mak suggests *Kamkuṭa as a reconstruction, in which Kam is a variant of the Sino-Sogdian surname Kang 康, though this is by no means certain.⁶⁵ Jinjuzha is likely *not* the actual author of this work, given that he is described as summoning down astral deities for information. The work is indirectly attributed to his revela-

⁶² A number of these have been reconstructed back into Sanskrit from transliterated Chinese. See Aruga Yōen 有賀要延, *Darani daijiten* ダラニ大辞典 (Tokyo: Kokusho kankōkai, 1998).

⁶³ The noun “apotropaism” refers to magic and/or ceremony that is practiced to avert disaster and evil. *Jue* 決 here is synonymous with *jue* 訣 (secrets of an art).

⁶⁴ Mak, “Transmission of Buddhist Astral Science,” p. 67.

⁶⁵ *Ibid.*, p. 68.

tions in an attempt to legitimize them.⁶⁶ In other words, I argue that, given the strange name, the contents, and his summoning down deities, Jinjuzha is a fictional character and was not a historical person.⁶⁷

It was compiled sometime between 806, when its ephemeris for Rāhu commences, and 865, when Shūei 宗叡 brought it to Japan.⁶⁸ Although it does not appear in Chinese catalogs, instructions in the text demand that it be kept secret.⁶⁹ It is therefore unclear what significance or application it had in China. It was used in the Japanese Sukuyō-dō 宿曜道 tradition.⁷⁰ The arrangement of sections in the text does not appear to follow any particular order. It draws on multiple sources (see below). There is no indication that this work was used at court, or even in any elite setting. The Chinese of the text is neither literary nor polished, even being colloquial at times. As to the original users of the text, we can only state that this included the Buddhist community from which Shūei obtained it.

INDIAN AND CHINESE SOURCES OF *QIYAO RANGZAI JUE*

Before discussing the Iranian elements of the text, we should first outline the main Indian and Chinese sources of the text's contents. In light of the earlier astrological texts in the Buddhist canon and the works

⁶⁶ "Now the Brahmin monk Jinjuzha from the Western Country orders down the deities of the twenty-eight lunar stations, asking about their fortunes and drawing their images. He discerns the apotropaic methods for the movements of the seven planets as follows 今西國婆羅門僧金俱吒, 命得二十八宿神下, 問其吉凶, 畫其形狀, 辨七曜所至攘災法如後." T 1308, 21: 426c3-5. There is a similar story in *Qiyao xingchen bie xingfa* 七曜星辰別行法 (T 1309), attributed to the astronomer monk Yixing 一行 (683-727), in which Yixing draws down astral gods to similarly make inquiries. The text's contents thus are attributed to divine revelation. See T 1309, 21: 452c5-9. This is also a feature in a number of Indian *jyotiṣa* (astronomy) works, such as *Sūrya-siddhānta*, in which the contents are attributed to gods. See Ebenezer Burgess, *Translation of the Sūrya-Siddhānta A Text-Book of Hindu Astronomy* (Calcutta: University of Calcutta, 1935), pp. vii-viii.

⁶⁷ This is contrary to several of the past cited studies that assume he was an actual historical translator. Dharma Drum Mountain's 'Buddhist Studies Person Authority Databases' also lists him as a historical person. <http://dev.ddbc.edu.tw/authority/person/?fromInner=A000772> (accessed 22 MAY 2016).

⁶⁸ It appears in his catalog of items brought back from China: 七曜讓災決一卷. See *Shin shosha shōrai hōmon tō mokuroku* 新書寫請來法門等目錄. T 2174A, 55: 1111B21.

⁶⁹ "There are many disasters related to the movements of the seven planets, as above. Now there is unlimited spiritual efficacy when it comes to avoiding disasters based on the apotropaic methods of the Western Country. Do not transmit them to those unwise 右七曜所至多有災害, 今依西國法攘之避厄神驗無極, 非智勿傳." T 1308, 21: 427B15-17.

⁷⁰ A lineage of Buddhist astrologer monks (tenth to fifteenth centuries). Their astrology was entirely imported from China and therefore their practice reflected the earlier Chinese model. See Yamashita Katsuaki 山下克明, "Sukuyō-dō no keisei to tenkai" 宿曜道の形成と展開, in *Kōki sekkan jidaishi no kenkyū* 後期攝關時代史の研究 (Tokyo: Yoshikawa Kōbunkan, 1990), pp. 481-527.

of Sino-Indian families such as the Gautamas, it is unsurprising to see abundant Indian materials in the *Qiyao rangzai jue*. Indian astrology has a long history and rich corpus of literature that developed over time, and from the fourth or fifth century it gradually incorporated many Hellenistic elements.⁷¹

Several elements are drawn directly from the earlier *Xiuyao jing* which speaks to its continued circulation. This includes the two diagrams that make up the *nakṣatra-puruṣa* or constellation-man. The left one shows the precise parts of the body that correspond to the similarly located twenty-eight *nakṣatras* of the right diagram. Such a chart is not visually represented in *Xiuyao jing*, which explains that if someone does not know their *nakṣatra*, then it will be determined based on which part of the body they are touching with their hand the first time they visit the astrologer.⁷² The *nakṣatra-puruṣa* is Indian in origin and appears in other literature.⁷³

Some of the *nakṣatra* lore is in fact derived from *Xiuyao jing*. In addition, the *nakṣatra* assignments for the new 朔 and full 望 moons, Chinese lunar days 1 and 15 respectively,⁷⁴ are from the calendar in the original *Xiuyao jing*, in which the text assigns the twenty-seven *nakṣatras* to lunar days, allowing for easy conversion between the Indian and Chinese calendars.⁷⁵

Other notable Indian features of the text include the associations between planets and tastes (Skt. *rasa*) that are well known in Āyurveda,⁷⁶ and the full range of mantras for the *navagraha* and other astrological purposes.⁷⁷

⁷¹ For a survey, see Martin Gansten, “Astrology and Astronomy (Jyotiṣa),” in *Brill’s Encyclopedia of Hinduism*, vol. 2, ed. Knut A. Jacobsen et al. (Leiden: Brill, 2010), pp. 281–94.

⁷² T 1299, 21: 392B26–C16.

⁷³ The arrangement of correspondences is different from *adhyāya* (chapter) 105 of the *Bṛhat-saṃhitā* of Varāhamihira; see Panditahbhushana V. Subrahmanya Sastri and Vidwan M. Ramakrishna Bhat, *Varahamihira’s Brihat Samhita with an English Translation and Notes* (Bangalore City: V. B. Soobbiah and Sons, 1946), pp. 794–95. The description in *Bṛhat-saṃhitā* runs from the feet to the head, whereas in *Xiuyao jing* it is from the head to the feet. As noted by the *Bṛhat-saṃhitā* translator, the custom when describing divine beings is to commence from the feet, whereas with humans it is from the head.

⁷⁴ In the Indian calendar known to Amoghavajra, a day’s name is derived from the *nakṣatra* in which the moon is nominally lodged. The names of the months are derived from the *nakṣatra* in which the full moon is lodged.

⁷⁵ The Taishō edn. of *Xiuyao jing* is different in its using twenty-eight *nakṣatras* and as a result the full-moon days do not align with the *nakṣatras*, which constitute the Indian months. This is additional proof that the author of *Qiyao rangzai jue* used the same recension of *Xiuyao jing* that Japanese monks such as Kūkai brought back with them.

⁷⁶ Mars: Hot flavor, spicy. Mercury: Sour (vinegar), bitter. Venus: Hot, astringent, sour (vinegar). Jupiter: Fragrant, sweet. Saturn: Salty, bitter, sour. T 1308, 21: 427C26–428A3.

⁷⁷ T 1308, 21: 428B23–429A6. These mantras are also found in Buddhist astral magic

Although the work is attributed to a Brahmin from India, there are multiple features that are clearly Chinese. For instance, the ecliptic is defined as 365.25 *du*-degrees, which is an ancient Chinese parameter.⁷⁸ The Indian and Hellenistic models define the ecliptic as 360 degrees (12 sections of 30 degrees each, i.e., the zodiac signs). The Chinese definition of the ecliptic is tied in with the stated parameters for the Chinese lunar stations (these are not Indian *nakṣatras*).⁷⁹ According to Yano, the coordinate system of the text reconstructed from internal details is the polar longitude system used in China since the Former Han dynasty and the equatorial coordinate system.⁸⁰ Although the system uses Chinese astronomy, it depends primarily on Indian lore (*nakṣatra*, zodiac, weekday) for astrological interpretation. This is a major feature of late-Tang astrology. It indicates that while astrologers were able to use foreign lore, they did not attempt to implement foreign systems of observational astronomy. This is similarly demonstrated by how the aforementioned **Navagraha* by Gautama Siddhārtha had minimal impact in China despite its objective scientific value. The use of Chinese lunar stations as functional equivalents for Indian *nakṣatras* is a significant compromise because despite some similarities they still remain different systems.

The system of “field allocation astrology” (*fenye* 分野) in the text includes a listing of the astro-terrestrial correspondences between the twenty-eight lunar stations and ancient Chinese states.⁸¹ This native system of ancient Chinese astrology assigns ancient states and regions of China to segments of the sky. The Milky Way and Yellow River are thus associated with one another. The landscape of China was thought to mirror the sky above. One then interprets planetary motions through the sky to predict events down on earth. This is entirely sino-centric, and the system changed over time. Yixing took into account both of China’s major river systems, which reflected the southern expansion of Chinese civilization since the Warring States period.⁸² *Qiyao rangzai jue* appears to take into consideration Yixing’s reforms, because it includes

texts: these include *Xiuyao yigui* 宿曜儀軌 (T 1304), *Beidou qixing humo fa* 北斗七星護摩法 (T 1310), and *Fantian huoluo jiuyao* 梵天火羅九曜 (T 1311). It is not clear that there was any Indian source of the mantras.

⁷⁸ T 1308, 21: 426B23.

⁷⁹ T 1308, 21: 427B18–C6.

⁸⁰ Yano, “Ch’i-yao jang-tsai-chüeh,” pp. 29–30.

⁸¹ T 1308, 21: 448C5–D1.

⁸² Pankenier, *Astrology and Cosmology in Early China: Conforming Earth to Heaven* (Cambridge: Cambridge U.P., 2013), pp. 278–79.

the region of Changsha 長沙, indicating that the author used updated sources rather than classical or even early Sui-Tang works.⁸³

The most significant Chinese feature of the text is that it uses Cao Shiwei's aforementioned *Futian li* calendar. The ephemerides for the five visible planets provide planetary positions for solar months as opposed to lunar months.⁸⁴ Each year has a column of twelve monthly positions plus relevant details. The first month or start of the year probably begins from *yushui* 雨水 (second of the twenty-four solar terms 節氣).⁸⁵ This was an innovative feature of the *Futian li*. The epoch for the five planets is specified by a Japanese scribe or commentator as year 10 of Zhenyuan 貞元 reign-era, corresponding to Japanese year 13 of Enryaku 延暦 (794). Each ephemeris specifies constants for planetary movements that Yabuuchi identified as being closest to the *Wuji li* 五紀曆 calendar, which was in official use between 762–783.⁸⁶ Recall that Cao Shiwei drafted the original *Futian li* for the seven planets between 780–783. The ephemerides for Rāhu (93 years) and Ketu (62 years) commence from year 1 of Yuanhe 元和 or Japanese year 1 of Daidō 大同 (806).⁸⁷ There are accounts of Cao Shiwei drafting ephemerides for Rāhu and Ketu (*Luoji er yinyao licheng li* 羅計二隱曜立成歷) with an epoch of 806.⁸⁸ It is further noted that this epoch occurs 147 years after the (original) epoch.⁸⁹ This almost exactly indicates the year 660, which was the epoch of Cao Shiwei's *Futian li*.⁹⁰ Thus these two ephemerides, and probably the others, are either based on or were reproduced di-

⁸³ Changsha is not a traditional area mentioned in *fenye* astrology. Here it is equated to Jingzhou 荊州 and Chu 楚, generally in south-central China.

⁸⁴ An ephemeris is a table detailing the positions of a planet on specific dates. Such a table allows for easy drafting of a horoscope as one can quickly ascertain the positions of a planets on a past date. This enables people with minimal knowledge of astronomy to draft a horoscope.

⁸⁵ Yano, "Ch'i-yao jang-tsai-chüeh," p. 29.

⁸⁶ Yabuuchi, *Chūgoku no tenmon rekihō*, pp. 182–83.

⁸⁷ The year 806 is also the epoch of the *Kālacakra Tantra*, a major Indian Buddhist work written in the early-11th c. As Edward Henning points out, "The relevant new Moon – 24 March 806 AD – is at the end of an intercalary month. This combined with the fact that on the preceding full moon there was a total lunar eclipse – an excellent time for adjusting luni-solar calculations – may well provide part of the reasoning why this date was chosen as an epoch. Also, on the day of the new moon itself, there was a partial solar eclipse." This likely explains the epoch of 806 also found in *Qiyao rangzai jue*. See Edward Henning, *Kālacakra and the Tibetan Calendar* (New York: The American Institute of Buddhist Studies at Columbia University, 2007), p. 226.

⁸⁸ See *j. 12* of *Zhizhai shulu jieti* 直齋書錄解題, p. 30. Listed under the heading "Yin-yang jia lei 陰陽家類"; included in *Qianlong yulan ben siku quanshu huiyao shi bu* 乾隆御覽本四庫全書薈要史部.

⁸⁹ T 1308, 21: 443B1–C1.

⁹⁰ Yabuuchi points this out. See Yabuuchi Kiyoshi, "Tō Sō Shii no Futenreki ni tsuite" 唐曹士為の符天曆について, *Biburia Tenri Toshokan hō* ビブリア 天理圖書館報 78 (1982), pp. 5–6.

rectly from Cao Shiwei's work. It seems then that the *Futian li* system is in fact partially or fully extant within the *Qiyao rangzai jue* text.⁹¹ Although none of these details suggest an Iranian influence, there is one significant feature that likely came through an Iranian medium, which will be discussed below.

IRANIAN SOURCES OF *QIYAO RANGZAI JUE*

The integration of Iranian elements into the text highlights the extent of Iranian influences in late-Tang astrology. It moreover indicates the lasting impact that Iranian figures such as Li Su and other unidentified persons had in China.

Here Iranian does not refer exclusively to the Persian language: in fact, loanwords for the planets in the text appear to be Sogdian, though the Sogdian terms are transcriptions of Middle Persian names for the planets, suggesting a strong connection to Iranian astrology (see table 1).⁹²

Table 1. Planet Loanwords in *Qiyao rangzai jue*⁹³

PLANET	CHINESE	SOGDIAN	MIDDLE PERSIAN
Sun	蜜	<i>myr</i>	<i>mihr</i>
Moon	莫	<i>m'x</i>	<i>māh</i>
Mars	雲漢	<i>wmx'n</i>	<i>wahrām</i>
Mercury	啞	<i>tyr</i>	<i>tīr</i>
Jupiter	溫沒斯	<i>wormzt</i>	<i>ohrmazd</i>
Venus	那頡	<i>n'xyō</i>	<i>anāhīd</i>
Saturn	鷄暖	<i>kyw'n</i>	<i>kēwān</i>

The Middle Persian names of the five visible planets are all named after major Iranian deities (Ohrmazd = Ahura Mazda), a custom that was based on an older Mesopotamian convention. G. Gnoli states that

⁹¹ This is contrary to the conclusion of Niu who concludes that *Futian li* was lost. See Niu, "On the Dunhuang Manuscript P.4071," p. 532.

⁹² Nicholas Sims-Williams pointed out to me that the Sogdian terms are transcriptions of the planet names from Middle Persian. Sogdian instead uses genuine Sogdian cognates such as Mishi rather than Mi(h)r, and Khurmazt rather than O(h)rmazd, when referring to gods. Private communication, July 25, 2016.

⁹³ See Antonio Panaino, "Cosmologies and Astrology," in Michael Strausberg and Yuhon Sohrab-Dinshaw Vevaina, eds., *The Wiley Blackwell Companion to Zoroastrianism* (John Wiley & Sons, 2015), p. 253. See also D.N. MacKenzie, *A Concise Pahlavi Dictionary* (London: Oxford U.P., 1971); and Yano, *Mikkyō senseijutsu*, p. 110.

the renaming of the planets in Iran based on Mesopotamian equivalents dates to the Achaemenid era.⁹⁴

The second fascicle (compiled in 759) of Amoghavajra's *Xiuyao jing* lists the Sogdian names for the planets, but the reader is instructed to ask a foreigner (a Sogdian, Indian or Persian) the day of the week if they should forget.⁹⁵ There are no indications of strong Iranian influences in *Xiuyao jing*. The Persian words listed in the text are actually numerals used to enumerate the days of the week.⁹⁶ It can therefore be inferred that the first significant introduction of Iranian astrology into China occurred after 764. We should recall that Li Su the Persian astronomer was already active in Chang'an around 781 and that Li Miqian, the foreign astrologer responsible for bringing the work of Hellenistic astrologer Dorotheus to China, was active between 785–805.

In *Qiyao rangzai jue* we learn about a system of twelve “places” or “houses” (Greek: *tópoi*). This is a key component to early Hellenistic astrology that was transmitted eastward to Iran, India and China.⁹⁷ The system is not found in *Xiuyao jing*. The twelve places are twelve static demarcations of the ecliptic through which the zodiac signs and planets move. In other words, the stars and planets move but the twelve places as spatial sections of the ecliptic do not move. The first place or ascendant is positioned at the eastern horizon and the subsequent places are counted counterclockwise. Predictions are made based on the zodiac signs and planets occupying each place (table 2).

The terms in the table are significant because, as Itō points out, the Chinese renderings of the place names are closer to the Iranian equivalents than the Western or Latin names available to him.⁹⁸ This is another indication of the shift towards Iranian sources of astrology in the late Tang.

⁹⁴ G. Gnoli, “BABYLONIA ii,” *Encyclopædia Iranica*, online edition, available at <http://www.iranicaonline.org/articles/babylonia-ii> (accessed on April 22, 2016).

⁹⁵ T 1299, 21: 398A28–B4.

⁹⁶ Yano, *Mikkyō senseijutsu*, p. 111.

⁹⁷ As Chan Man Sing points out, the Tang poet Du Mu 杜牧 (803–852) was familiar with the twelve places and his work seems to assume that readers were likewise adequately familiar with such a system of astrology; Chan, “Du Mu yu xingming,” p. 61.

⁹⁸ Itō Gikyō 伊藤義教, *Perushia bunka toraikō* ベルシア文化渡来考 (Tokyo: Iwanami shoten, 1980), p. 224.

Table 2. *The Twelve Places in Qiyao rangzai jue*⁹⁹

	CHINESE	TRANSLATION	INDIAN EQUIVALENT	IRANIAN EQUIVALENT
I	命宮·命位	Life	<i>tanu</i>	<i>gyānān</i>
II	財宮·財物	Wealth	<i>dhana</i>	<i>kisagān</i>
III	兄弟	Brothers	<i>sahaja</i>	<i>brādarān</i>
IV	田宅	Estate	<i>suḥrt/bandhava</i>	<i>pedištān</i>
V	男女	Children	<i>suta</i>	<i>frazandān</i>
VI	僮僕	Servants	<i>riṣu</i>	<i>waštāgān</i>
VII	妻妾·夫妻	Marriage	<i>jāyā</i>	<i>wayodagān</i>
VIII	疾病·病厄	Illness	<i>mṛtyu</i>	<i>margān</i>
IX	遷移	Travel	<i>dharma</i>	<i>kārdāgān</i>
X	官位·官祿	Rank	<i>karma/āspada</i>	<i>mayān ī asmān</i>
XI	福相·福德	Fortune	<i>āya</i>	<i>farroxān</i>
XII	困窮·禍害	Distress	<i>vyaya</i>	<i>dušfarragān</i>

A significant astronomical feature of the *Qiyao rangzai jue* is the presence of Babylonian “goal-years.” Babylonian goal-years are planetary periodicities or cycles. A planet will return to its original position after the specified number of years and subsequently restart the same cycle it followed before.¹⁰⁰ The aforementioned ephemerides specify the number of sidereal rotations (R) and number of synodic periods (A) in a number of years (Y) as follows:

Jupiter: 83 (Y), 76 (A), 7 (R).

Mars: 79 (Y), 37 (A), 42 (R).

Saturn: 59 (Y), 57 (A), 2 (R).

Venus: 8 (Y), 5 (A).

Mercury: 33 (Y), 104 (A).

Yano points out these numbers provide the mean lengths of Greek letter phenomena,¹⁰¹ but apart from Mercury they also all correspond to known Babylonian goal-years.¹⁰² These numbers are not derived from those famously specified by the Greek astronomer Ptolemy (fl. ca. 150

⁹⁹ Adapted from Yano, *Mikkyō senseijutsu*, p. 51.

¹⁰⁰ This is why these ephemerides could be reused in later centuries as indicated by the Japanese reign years marked above in the tables (for instance year 1 of Kantoku 寛徳 = 1044).

¹⁰¹ Yano, “Ch’i-yao jang-tsai-chüeh,” p. 29.

¹⁰² Note, however, that $33 / 104 = 0.317$ and $46 / 145 = 0.317$. Babylonian goal-years (created in ancient Mesopotamia) are reoccurring planetary periodicities or cycles of movement from which predictions can be made.

ad).¹⁰³ These periods also appear in various systems of astronomy around Eurasia, including India and Central Asia.¹⁰⁴ The full range of Babylonian goal-years provided by Hunger and Pingree are as follows:

Saturn: 59 (Y), 57 (A), 2 (R).
 Jupiter: 71 (Y), 65 (A), 6 (R).
 Jupiter: 83 (Y), 76 (A), 7 (R).
 Mars: 79 (Y), 37 (A), 42 (R).
 Mars: 47 (Y), 22 (A), 25 (R).
 Venus: 8 (Y), 5 (A), 8 (R).
 Mercury: 46 (Y), 145 (A), 46 (R).¹⁰⁵

Although these goal-years could stem from an Indian source, it is more likely that they came through an Iranian medium. As noted above, *Qiyao rangzai jue* probably incorporates Cao Shiwei's *Futian li* calendar. In Song Lian's 宋濂 (1310–1381) *Luming bian* 祿命辨 we read that Cao Shiwei studied under the foreigner Li Biqian (the same Li Miqian mentioned above) and subsequently updated his calendar.

Early in the Zhenyuan reign-era (785–805) of the Tang, Li Biqian first calculated the ephemerides for the eleven stars. Bao Gai and Cao Shiwei both studied it. Shiwei also drafted ephemerides for the two hidden planets Rāhu and Ketu. It starts from the first year of the reign-era Yuanhe [806].¹⁰⁶ 唐貞元初, 李弼乾始推十一星行歷, 鮑該曹士蔦皆業之。士蔦又作羅計二隱曜立成歷, 起元和元年。

From this we can infer that Cao Shiwei was likely to have learned about Babylonian goal-years from Li Miqian and incorporated them into his work.

Song Lian's account above also states that Li Miqian introduced the “eleven stars” that Cao Shiwei subsequently studied before compiling

¹⁰³ Saturn: 59 (Y), 57 (A), 2 (R). Jupiter: 71 (Y), 65 (A), 6 (R). Mars: 79 (Y), 37 (A), 42 (R). Venus: 8 (Y), 5 (A). Mercury: 46 (Y), 145 (A). Otto Neugebauer, *A History of Ancient Mathematical Astronomy* (Springer Science & Business Media, 2012), pp. 604–5. Ptolemy ascribed these to Hipparchus (ca. 150–125 BC) who is thought to have transmitted Babylonian astronomy into Greece. Olaf Pedersen, *A Survey of the Almagest with Annotation and New Commentary by Alexander Jones* (Springer Science & Business Media, 2011), pp. 269–70.

¹⁰⁴ David Pingree, “Legacies in Astronomy and Celestial Omens,” in Stephanie Dalley, ed., *The Legacy of Mesopotamia* (Oxford: Oxford U.P., 1998), pp. 135–37.

¹⁰⁵ Hermann Hunger and David Edwin Pingree, *Astral Sciences in Mesopotamia* (Leiden: Brill, 1999), p. 168. The goal-year parameters for Mercury are found in a later Chinese work by Liu Dingzhi 劉定之 (1409–1469) which provides the following numbers: Jupiter: 83 (Y), 76 (A), 7 (R). Mars: 79 (Y), 37 (A), 42 (R). Saturn: 59 (Y), 57 (A), 2 (R). Venus: 8 (Y), 5 (A). Mercury: 46 (Y), 145 (A). See the *Za zhi* 雜誌, j. 56 in *Ming wen heng* 明文衡 collection, pp. 38–39. In *Qinding siku quanshu* 欽定四庫全書, *Jibu ba* 集部八, *Zongjilei* 總集類. See Ren Jiyu 任繼愈, ed., *Zhonghua chuanshi wenxuan Ming wen heng* 中華傳世文選明文衡 (Changchun: Jilin Remin Chubanshe, 1998), p. 557.

¹⁰⁶ Ibid., p. 151.

his ephemerides for Rāhu and Ketu. It therefore seems likely that the parameters he used were based on materials provided by Li Miqian, who it seems was Persian. The “eleven stars” or “eleven planets” include the sun, moon, five visible planets, Rāhu, Ketu, *zigi* 紫炁,¹⁰⁷ and *yuebei* 月孛. As far as the present evidence suggests, this set is unique to China, although the latter four “planets” were all introduced from abroad. *Qiyao rangzai jue* includes parameters for Rāhu and Ketu. Rāhu is the ascending node of the moon, which is its standard function in Indian astronomy. Ketu is normally the descending node of the moon in Indian astronomy, but as Yano discovered, in *Qiyao rangzai jue* Ketu is the lunar apogee (Skt. *ucca*).¹⁰⁸ As he notes, there would be no need for an ephemeris for Ketu as the descending node because it would just follow the opposite movement of Rāhu. The text states that Ketu makes 7 rotations in a 62-year period, thus one cycle is 8.85 years (the lunar precession).¹⁰⁹

In the set of eleven planets, *yuebei* is also the lunar apogee. Liu Dingzhi 劉定之 (1409–1469) provides the following parameters:

The *bei* is produced from the moon. There is a fixed velocity of the moon’s movement. The slowest point is the *bei*, which is why it is called the lunar *bei*. The *bei* has 7 rotations in a 62-year period.¹¹⁰ 孛生于月，月之行遲速有常度，最遲之處即孛也，故謂之月孛，孛六十二年而七周天。

Qiyao rangzai jue also gives *yue boli* 月勃力 as an alternate name for Ketu.¹¹¹ It seems that Cao Shiwei preferred to use nine planets (*nava-*

¹⁰⁷ *Ziqi* (“purple haze”; also written 紫氣) is not a part of *Qiyao rangzai jue*, but it became a part of Daoist astrological works such as *Chengxing lingtai miyao jing* 秤星靈臺秘要經 (DZ 289), written within a few decades after 894–898 (see below). The term itself is much older, but did not have an astronomical function. Liu Dingzhi gives the following parameters for it: “The *qi* is produced from intercalation. In 28 years there are 10 intercalary months, and the *qi* moves around the ecliptic once 炁生於閏二十八年十閏而炁行一周天.” See Ren, ed., *Zhonghua chuanshi wenxuan Ming wen heng*, p. 557. This is a method conceived of as a point on the ecliptic for determining when to insert intercalary months. Assuming 360 degrees rather than the Chinese value of 365.25 degrees, the following model is produced. 28 years x 360 days = 10,080 days. 10,080 days ÷ 360 (degrees) = 28 days. Every 28 days the “planet” progresses 1 degree as 28 days = 1 degree. 10,080 ÷ 10 (times for intercalary months) = 1008 days. 1008 days ÷ 28 days (= 1 degree each) = 36 degrees. Every 36 degrees (2.8 years) an intercalary month is inserted. 360 degrees ÷ 36 degrees = 10 positions to insert intercalary months. Using the Chinese value (365.25) does not produce whole numbers, whereas 360 degrees does. This highlights the originally foreign origin of the concept as it was designed with the occidental zodiac in mind and not Chinese parameters.

¹⁰⁸ Yano, *Mikkyō senseijutsu*, p. 186. See also Yano, “Ch’i-yao jang-tsai-chüeh,” pp. 31–33.

¹⁰⁹ T 1308, 21: 446C3–D1.

¹¹⁰ Ren, ed., *Zhonghua chuanshi wenxuan Ming wen heng*, p. 557.

¹¹¹ T 1308, 21: 446B1–2. The *li* 力 here has no clear meaning and is likely being used phonetically. The character of *bei* 孛 can mean comet or abruptness, but this seems inappropriate.

graha) and assigned Ketu as the lunar apogee rather than the descending node of the moon. Yano explains that in “Indian astronomy as well as in Greek astronomy, lunar anomaly was always counted from the apogee, while in Chinese astronomy the perigee was the initial point.” Thus, according to Yano, the tabulation of the lunar apogee is based on a Western tradition of astronomy, albeit with the unusual designation of Ketu.¹¹² These parameters for the lunar apogee – which Cao Shiwei assigned to Ketu – are therefore most likely of Iranian rather than Indian origin in light of Cao Shiwei’s interaction with Li Miqian. The alternative names for Rāhu and Ketu also suggest a possible Iranian connection. They are designated as the head and tail of an eclipse deity 蝕神, respectively. This has a parallel in the ninth-century Pahlavi *Bundahišn*, which is primarily a cosmography based on the Zoroastrian scriptures, in which the ascending and descending nodes of the moon are described as the head and tail of a dragon.¹¹³

There are two sets of foreign icons described but not visually represented in *Qiyao rangzai jue*.¹¹⁴ They represent the planets (including the sun and moon in one set) as deities. It should first be noted that the planets in India were originally depicted as all male and quite different from the two sets in *Qiyao rangzai jue*, and also that they accompanied the transmission of Mantrayāna in the eighth century; they are also found in *Taizō zuzō* 胎藏圖象, which depicts the deities of the *Garbhadhātu-maṇḍala 胎藏界曼荼羅.¹¹⁵ In light of this, Lilla Russell-Smith’s suggestion that anthropomorphic representations of the planets “became popular only after the arrival of Buddhism” is correct.¹¹⁶

ate for an invisible point of space, though granted one original meaning of *ketu* in Sanskrit is comet. The aforementioned *boli* 勑力, however, seems otherwise meaningless. The latter *li* 力 could be a scribal error for a character like *kan* 勘 or *jia* 加 (read as *ka*), in which case the term would phonetically approximate the Greek term *apógeion* (the initial *a-* is often dropped in Chinese), perhaps represented as a loanword in another language. The term as a binomial with no clear semantic meaning possibly indicates it is a transliteration.

¹¹² Yano, “Ch’i-yao jang-tsai-chüeh,” p. 31.

¹¹³ D. N. MacKenzie, “Zoroastrian Astrology in the Bundahišn,” *Bulletin of the School of Oriental and African Studies* 27.3 (1964), p. 515.

¹¹⁴ I discuss these icons in the East Asian art record at length in a separate survey: “Astrological Iconography of Planetary Deities in Tang China: Near Eastern and Indian Icons in Buddhist Literature and Art,” *Journal of Chinese Buddhist Studies* (2017), forthcoming.

¹¹⁵ These icons are based on those brought to Japan from China by Enchin 圓珍 (814–891), who copied them in 855 in Chang’an at Qinglongsi 青龍寺. It is said these icons were first drawn by Śubhakarasiṃha, the Indian translator of the *Mahāvairocana-sūtra*. See vol. 2 of *Taishō zuzō* 大正圖像, pp. 277–79.

¹¹⁶ Lilla Russell-Smith, “Stars and Planets in Chinese and Central Asian Buddhist Art from the Ninth to the Fifteenth Centuries,” in Lucia Dolce, ed., *The Worship of Stars in Japanese Religious Practice* (Bristol: Culture and Cosmos, 2007), p. 99.

However, the icons she refers to (the second set, below) were not likely transmitted through India, as she writes.

The first set in the *Qiyao rangzai jue* is described as follows:¹¹⁷

Sun:

A form like a man, but a head like a lion with a human body. Wearing a heavenly garment. The hand is holding a jeweled vase black in color. 形如人而似獅子頭人身, 著天衣, 手持寶瓶而黑色.

Moon:

A form like a heavenly lady wearing a blue garment, holding a jeweled sword. 形如天女, 著青天衣, 持寶劍.

Jupiter:

A form like a man. A man's body and dragon's head, wearing a heavenly garment. The color changes according to the four seasons. 形如人, 人身龍頭, 著天衣, 隨四季色.

Mars:

A form like an elephant, black in color, crying out to the sky. 形如象黑色向天大呼.

Saturn:

A form like a Brahmin, riding a black ox. 形如婆羅門, 騎黑沙牛.

Venus:

A form like a heavenly lady, her hand holding a seal, riding a white fowl. 形如天女, 手持印, 騎白鷄.

Mercury:

A form like a black snake, having four legs and eating a crab. 形如黑蛇有四足而食蟹.

As I have earlier pointed out, some of these icons bear resemblance to ones found in Egypt,¹¹⁸ for example, the lion-headed sun deities. The lion-headed Sekhmet could be known as the Eye of Ra (the sun god).¹¹⁹ There are also several examples of lion-headed icons personifying stars, decans, and planets depicted on the ceiling of the Temple of Hathor at Dendera in Egypt (Greco-Roman period).¹²⁰ According to Parker's study, the astronomical ceiling of Senmut (ca. 1473 BC) includes Venus as a heron. Throughout Egyptian history, Saturn was always called 'Horus bull of the sky' or 'Horus the bull'. Mercury was identified with

¹¹⁷ T 1308, 31: 426C6-427B17.

¹¹⁸ Kotyk, "Kanjiken no bungaku ni okeru," pp. 98-99.

¹¹⁹ Geraldine Pinch, *Handbook of Egyptian Mythology* (Santa Barbara, Cal.: ABC-CLIO Inc., 2002), pp. 128-31.

¹²⁰ See plate 41 (figures S 19A-17) in Neugebauer and Parker, *Egyptian Astronomical Texts III. Decans, Planets, Constellations and Zodiacs (Plates)* (Brown U.P., 1969).

animal-headed Seth.¹²¹ In light of the origins of Hellenistic astrology in Alexandria, it is plausible that such icons could have been transmitted via an Iranian source to China. Pingree also demonstrated that Egyptian icons found their way to India where they underwent some modification as seen in the Sanskrit *Yavanajātaka*.¹²²

The other set of planetary icons described in *Qiyao rangzai jue* became the standard set in East Asia.¹²³ They are as follows:

Venus:

The deity is a lady wearing a yellow garment, and fowl hat on her head, plucking a *pipa*. 其神是女人, 著黃衣, 頭戴鷄冠, 手彈琵琶.

Jupiter:

The deity is like an elderly man, wearing a blue garment, and a swine hat, with a dignified appearance. 其神如老人, 著青衣, 帶猪冠, 容貌儼然.

Mercury:

The deity is a lady wearing a blue garment and a monkey hat,¹²⁴ her hands holding a scroll. 其神女人, 著青衣, 帶猴冠, 手執文卷.

Mars:

The deity is of a red mineral color, wearing a donkey hat of a furious [red] color, and a leopard skin skirt. Four arms: one hand holds a bow, one hand holds an arrow, and one hand holds a blade. 作銅牙赤色貌, 帶噴色驢冠, 著豹皮裙. 四臂: 一手執弓, 一手執箭, 一手執刀.

Saturn:

The deity is like a Brahmin, black in color. On his head he wears an ox hat. One hand grasps a cane, the other hand pointing forward. His

¹²¹ R.A. Parker, "Ancient Egyptian Astronomy," *Philosophical Transactions of the Royal Society of London. Series A. Mathematical and Physical Sciences* 276.1257 (1974), pp. 59–61.

¹²² David Pingree, "The Indian Iconography of the Decans and Horas," *Journal of the Warburg and Courtauld Institutes* 26.3 (1963), pp. 223–54. *Yavanajātaka* is an early astrological work in Sanskrit comprised of Hellenistic and Indian elements. Pingree concluded that in 149/150 an Alexandrian text on Hellenistic astrology, which had originally been composed in Egypt sometime shortly after 100 AD, was translated into Sanskrit prose by a certain "Yavaneśvara" (ruler of the Greeks) in western India. It was later preserved as *Yavanajātaka*, composed by Rāja Sphujidhvaja in 269–70 during the reign of Rudrasena II (r. ca. 255–76). Mak has disputed this based on new manuscript evidence and suggests that it "is dated sometime after 22 AD and could be as late as the early seventh century..."; Bill M. Mak, "The Transmission of Greek Astral Science into India Reconsidered – Critical Remarks on the Contents and the Newly Discovered Manuscript of the *Yavanajātaka*," *History of Science in South Asia* 1 (2013), p. 17.

¹²³ T 1308, 21: 449A3–B12. A prominent example of these icons in the art record is a painting from Dunhuang titled "Tejaprabhā Buddha and the Five Planets" 熾盛光佛并五星圖 by Zhang Huaixing 張淮興, which dates to Qianning 乾寧 4 (897); Stein no. Ch.liv.007, British Museum 1919.0101.0.31.

¹²⁴ Reading *huo guan* 獲冠 as *yuan guan* 猿冠.

back seems slightly bent. 其神似婆羅門, 色黑, 頭帶牛冠, 一手拄杖, 一手指前, 微似曲腰。

Takeda investigated these icons as they are found in “star *maṇḍalas*” 星曼荼羅 of medieval Japan. He concluded that the icons were a unique innovation of China.¹²⁵ However, Islamic astrological art depicts the planets similarly: Mercury is a young, male scribe writing on a scroll, Venus is a female musician, Mars is a warrior, Jupiter a judge, and Saturn a scantily clothed old man of a dark complexion holding a pickaxe.¹²⁶ These correspond to the characteristics of Iranian planetary deities, which were originally assigned to their respective planets based on similarities with Mesopotamian deities. Tīr (Mercury) corresponds to Nabu; Anāhīd (Venus) corresponds to Istar; Wahrām (Mars) to Nergal; Ohrmazd (Jupiter) to Marduk; and Kēwān (Saturn) to Kajamānu.¹²⁷ The icons described in Chinese even have direct parallels with the Mesopotamian deities: Nabu presides over scribes and writing, while Nergal is a war god.¹²⁸ As to the colors, there are several parallels with those provided in a Greek papyrus (PGM CX 1–12) from the second or third century AD in which certain stones are prescribed to represent the planets: Kronos (Saturn) is obsidian (black); Ares (Mars) is yellow-green or reddish onyx; Aphrodite (Venus) is lapis lazuli veined with gold; Hermes (Mercury) is turquoise; and Zeus (Jupiter) is of a whitish or dark blue stone.¹²⁹ Similar color assignments are also found in Indian literature, specifically in *Yavanajātaka*, an astrology manual, which Pingree notes were “fairly standard in Greek astrology: the Sun with coppery red, the moon with silver, Mars with red, Mercury with green, Jupiter with yellow, Venus with white, and Saturn with black.”¹³⁰ The *Picatrix* also assigns similar colors.¹³¹

¹²⁵ Takeda Kazuaki 武田和昭, *Hoshi mandara no kenkyū* 星曼荼羅の研究 (Kyoto: Hōzōkan, 1995), p. 191.

¹²⁶ Stefano Carboni, *Following the Stars: Images of the Zodiac in Islamic Art* (New York: The Metropolitan Museum of Art, 1997), p. 6.

¹²⁷ Panaino, “Cosmologies and Astrology,” p. 253.

¹²⁸ Gwendolyn Leick, *A Dictionary of Ancient Near Eastern Mythology* (London: Routledge, 1991), pp. 123–24, 127–28. See also “Ancient Mesopotamian Gods and Goddesses” project: <http://oracc.museum.upenn.edu/amgg/index.html>.

¹²⁹ There are variations in the translation of the colors. See Hans Dieter Betz, ed., *The Greek Magical Papyri in Translation Including the Demotic Spells* (Chicago: U. Chicago P., 1986), p. 312. Also see James Evans, “The Astrologer’s Apparatus: A Picture of Professional Practice in Greco-Roman Egypt,” *Journal for the History of Astronomy* 35.1 (2004), p. 4.

¹³⁰ David Pingree, “Indian Planetary Images and the Tradition of Astral Magic,” *Journal of the Warburg and Courtauld Institutes* 52 (1989), p. 3.

¹³¹ “The color of Saturn is like burned wool; that of Jupiter is green, that of Mars is red; that of the Sun is the color of yellow gold; that of Venus is saffron colored; that of Mercury is like lac and the color of gold mixed with green; that of the Moon is white.” See John Michael

It should be noted here that the description of Saturn as a Brahmin (in depictions this is understood as a bearded man) with his back bent and holding a cane seems to be derived from the Greco-Egyptian depiction of Kronos. One magical stone engraved with an image of Kronos, studied by Evans, shows him as a hunched over man, reaping wheat with the sickle that he used to castrate his father Ouranos (figure 1). The cane is perhaps a misunderstanding of the original sickle. One late portrayal of Saturn in India, which is likely from Persia originally, also sees him carrying a staff, being dark in color, and sometimes riding a bull, as seen in *Lagnacandrikā*, which was composed by Kāśinātha in the first half of the sixteenth century in northern India. As to the bull, as Pingree notes, this is neither the white-humped bull Nandī, the mount or *vāhana* of Śiva, nor the buffalo of Yama.¹³² I would tentatively suggest that the bull associated with Saturn was originally related to Horus, see the above discussion.



Figure 1. Kronos as Reaper

Haematite. Département des Monnaies, Médailles et Antiques, Bibliothèque nationale de France, Paris. From Evans, "Astrologer's Apparatus," p. 17 (cited n. 129). Photograph and right to reproduce courtesy of James Evans.

Greer and Christopher Warnock, trans., *The Picatrix Liber Rubens Edition* (n.p.: Adocentyn Press, 2010–2011), p. 140. The *Picatrix* is a medieval Arabic manual of magic and astrology that later richly influenced the European occult tradition.

¹³² See p. 13 and appended plate 5B in Pingree, "Indian Planetary Images." In *Niṣpannayogāvalī*, Saturn is "black, on a tortoise, bearing a staff"; *ibid.*, p. 7.

This foreign astrological iconography is an important component to the astral magic that emerged in the late Tang among Buddhists and Daoists. In addition to the aforementioned associated colors and stones whose roots were in Hellenistic traditions, another feature can be traced back to the Greco-Egyptian tradition of astral magic. *Qiyao rangzai jue* prescribes the following ritual to be performed to gain favor from Saturn:

[When Saturn] moves into [one's] *nakṣatra* and natal house, one should cast [an image of Saturn] about four inches tall, a bent back, three robes, bottle, and bowl. On Saturdays at dawn, take a black porcelain bottle and fill it. Place it at the head of where one sleeps and drip sesame oil atop its crown. After three years the offering will be complete.¹³³ Recite the *Tejaprabhā single-syllable king mantra, the *Mahāparinirvāṇa-mahā-sūtra* and the *Prajñāpāramitā-sūtra*, either in ten fascicles or one-hundred fascicles. One should burn Persian incense, wear a white outer garment and on the belt carry realgar, cinnabar and a dagger. Make a loop and attach them. They can overlap several times. On days of Kēwān [Saturn] at dawn paint him [his image] on silk and make offerings of good foods and fruits. It is superior to wear the color black. Sincerely state: "King Kēwān! May I [stating one's name] be guarded by your lord like a disciple. I beseech you to guard my life and halt calamities!" One should personally eat the offerings that were given.¹³⁴

到宿命宮，宜鑄可長四寸，曲腰，三衣，瓶鉢。土直日平旦，以黑瓷瓶盛之，於臥處頭邊，以油麻油灑於頂上。經三年止盡供養。持熾盛光一字王真言，涅槃經，般若經十卷或百卷。宜燒安息香，著白上衣及帶雄黃朱砂及屠刀。打作環帶之，可重四兩。雞緩日平旦以絹畫之，供養好食菓子。帶黑色者爲上。至心啓告：雞緩國王，某甲君王如護弟子，伏願護命去災。所供養物宜自食之。

The transliterated loanword of Kēwān is an immediate indication of Iranian influence. The prescribed "Persian incense" (*anxi xiang* 安息香, or 安息香) corresponds to styrax benzoin, according to Christopher Cullen and Vivienne Lo.¹³⁵ Styrax is also the prescribed incense for Saturn in a papyrus (translated by Betz; PGM XIII. 16–22): "the

¹³³ Three years is roughly enough time to accommodate the transit of Saturn through a single zodiacal sign.

¹³⁴ T 1308, 21: 449B2–12.

¹³⁵ See appendix 1 "Materia medica" in Christopher Cullen and Vivienne Lo, *Medieval Chinese Medicine: The Dunhuang Medical Manuscripts* (NYC & London: Routledge, 2004).

proper incense of Kronos is styrax, for it is heavy and fragrant.”¹³⁶ This feature, along with the associated color black,¹³⁷ links it to the astral magic of the Greco-Egyptian tradition in the Near East. It was most likely transmitted to China via an Iranian intermediary, as there is no evidence of an Indian connection. The Buddhist elements in the passage might seem to suggest such an Indian intermediary, but these were in fact added in China. This can be inferred because there is a similar ritual found in a Daoist work, though the prescribed text to be read differs. *Chengxing lingtai biyao jing* 秤星靈臺祕要經 (DZ 289), a fragmentary work written within a few decades after 894–898 (the Qian-ning 乾寧 era),¹³⁸ contains the following:

Furthermore, the **Navagraha Sūtra* states that one is to cast using plow iron¹³⁹ one true image of Saturn, seven inches tall. Take a black porcelain jar and fill it. Place it [the image] at the head of one’s bed. On every day of Kēwān [Saturday] at dawn, drip black oil and sesame broth on its head. After [three?] year[s] remove it. If painting [the image of the deity] and making offerings, one must also offer it fruits throughout the year. It is especially excellent to wear the color black. The incantation: “Kēwān my lord, I [stating your name] your retainer beg your protection and liberation from distress.” Afterward, having paid respects and provided the offerings, personally consume them. [Offer] good foods, sour and bitter in flavor. One should read the *Eight Yang Scripture*.¹⁴⁰ Carry realgar and cinnabar. Burn Persian incense. Wear black garments.

¹³⁶ Betz, ed., *The Greek Magical Papyri*, p. 172. See also Stephen Skinner, *Techniques of Graeco-Egyptian Magic* (n.p.: Golden Hoard Press, 2014), p. 121.

¹³⁷ The association of Saturn with black things and sesame is also still a feature of Saturn worship in contemporary Hinduism. See Robin Rinehart, *Contemporary Hinduism: Ritual, Culture, and Practice* (Santa Barbara, Cal.: ABC-CLIO, 2004), p. 134.

¹³⁸ Marc Kalinowski, “*Chengxing lingtai biyao jing*” 秤星靈臺祕要經, in Kristofer Schipper and Franciscus Verellen, eds., *The Taoist Canon A Historical Companion to the Daozang* (Chicago: U. Chicago P., 2004) 1, pp. 337–38. This work appears to have been used together with the aforementioned *Lingtai jing* 靈臺經 (DZ 288).

¹³⁹ “Plow iron 犁具鑄鐵” here likely points to Kronos’ connection with agriculture. *Picatrix* states that Saturn rules over “those that work with the earth, plowing, digging, extracting minerals, ... among metals [he rules over] lead, iron and all metals that are black ...” Greer and Warnock, trans., *Picatrix*, p. 133.

¹⁴⁰ Presumably one of the modified Daoist versions of the *Foshuo bayang shenzhou jing* 佛說八陽神呪經 (T 428) or *Foshuo tiandi bayang shenzhou jing* 佛說天地八陽神呪經 (T 2897): *Taishang Laojun shuo anzhai ba yang jing* 太上老君說安宅八陽經 (DZ 634), or *Taishang Laojun shuo buxie ba yang jing* 太上老君說補謝八陽經 (DZ 635). The latter two especially are apotropaic texts employed to resolve problems in a dwelling brought on by disturbed earth spirits; see Christine Mollier, *Buddhism and Taoism Face to Face: Scripture, Ritual, and Iconographic Exchange in Medieval China* (Honolulu: U. Hawaii P., 2008), p. 14.

Do not enter the temples of evil gods. It is taboo to eat beef. It is taboo [to use] vessels made of horn.¹⁴¹

又九執經云：宜以犁具鑄鐵鑄，作一土星真形，長七寸，以黑磁甕盛之，置於臥床頭安之。每於雞緩直日平旦時，以黑油麻汁灑頭上，經年乃去之。如畫之供養，亦得以隨年果子供養，帶黑色者，尤妙。咒曰：雞緩是我君主，某臣僕願加祐護，次以度災厄。然後，拜之供養訖，自己食之。好食酸苦等。宜看八陽經，帶雄朱，燒安息香，著皂衣，不入惡神廟，忌食牛肉，忌角器等。

This ritual in a simpler form is also found in the *Kuyō hiryaku* 九曜祕曆.¹⁴² It appears that such a ritual comprised of astral magic was made available in Chinese in the ninth century and subsequently was adapted by Buddhist and Daoist authors to their own purposes. This is a unique example of elements of Near Eastern magic being practiced in China. It is therefore clear that not only was Hellenistic astrology transmitted via Iranians around the year 800, but around this time the associated tradition of astral magic stemming originally from the Near East was also introduced into China, where Buddhists and Daoists incorporated it into their respective practices of astral magic. This point highlights the extent of astrology's popularity in the ninth century and the influence of Iranian astrologers in China. These Iranian influences are still seen in documents from Dunhuang and elsewhere.

POST-TANG CHINA

As mentioned above, an important piece of pictorial evidence for the planetary deities is that titled “*Tejaprabhā Buddha and the Five Planets,” from the year 897. The mainstream planetary deities, described above as wearing associated animal caps, also appear in a certain “*Tejaprabhā Maṇḍala,” associated with the Xi Xia city of Khara Khoto.¹⁴³ There is another well-preserved specimen from Dunhuang

¹⁴¹ Zhengtong Daozang 正統道藏, Wenwu Chubanshe edn., vol. 5, 30C2-10.

¹⁴² *Taishō zuzō* 大正圖像, vol. 7, pp. 769-73, which explains astrological features of each day of the seven-day 七曜 week, along with mantras for each planet and illustrations of the planetary deities. The manuscript copied by Sōkan 僧觀 in Tenji 天治 2 (1125) was based on an earlier copy (Tengyō 天慶 3 [940]), thus it was composed sometime before 940 (see New York Metropolitan Museum of Art #1975.268.4). The work may have originated in China, but this is uncertain. For relevant studies see Nakano Genzō 中野玄三, “Kanchiin shozō Kuyō hiryaku ni tsuite” 觀智院所藏九曜祕曆について, *Tokyo Kokuritsu Hakubutsukan kenkyūshi* 東京國立博物館研究誌 218 (1969), pp. 13-24; Manabe Shunshō 真鍋俊照, “Karazu no zuzō to seiritsu” 火羅圖の圖像と成立, *Indogaku Bukkyōgaku kenkyū* 30.2 (1982), pp. 324-29; Ikuyo Matsumoto, “Two Medieval Manuscripts on the Worship of Stars from the Fujii Eikan Collection,” in Dolce, ed., *Worship of Stars in Japanese Religious Practice*, pp. 125-44.

¹⁴³ See reproductions in Tansen Sen, “Astronomical Tomb Paintings from Xuanhua: Maṇḍalas?” *Ars Orientalis* 29 (1999), p. 44. A number of art pieces depicting *Tejaprabhā and planetary deities are found in the Khara Khoto collection of the State Hermitage Museum,

entitled “Talisman of the Pole Star,” dated tentatively by scholars to 926–975.¹⁴⁴ The female figure is depicted holding a brush and paper, but labeled as “Northern Deity Star” 北方神星, which led to the erroneous understanding that this is the “spirit of the Pole Star”.¹⁴⁵ Mercury in Chinese lore is associated with the north and this is also expressly stated in *Qiyao rangzai jue*.¹⁴⁶

Astrological texts and horoscopes from Dunhuang also reveal earlier Iranian influences.¹⁴⁷ Pelliot chinois 4071 is a horoscope compiled in year 7 of Kaibao 開寶 (January 975; no title), compiled by Kang Zun 康遵, who was probably a Sogdian. Jao Tsung-I identified in its text some citations of the aforementioned *Duli yusi jing* (**Dorotheus*).¹⁴⁸ The horoscope’s astrological system uses the eleven planets introduced by Li Miqian as well as Cao Shiwei’s *Futian li*. Pelliot chinois 3779 (*Tui jiuyao xingnian ronghe fa* 推九曜行年容厄法) – an astrological manual for the *navagraha* – refers to the planets as deities using their transliterated names from Sogdian. Gao identifies these as coming from Sogdian, but does not identify them as Iranian deities.¹⁴⁹ The transliterated names are found in other documents, such as Pelliot chinois 3081, which includes a number of astrological schedules related to the seven-day week. These documents demonstrate how the conventions of the seven-day week in China were heavily influenced by Sogdian sources even though the seven-day week was first made accessible by Amoghavajra with his translation of *Xiuyao jing*, originally designed for use in the proper timing of Buddhist rituals.

St. Petersburg, Russia. These are available online: <http://www.hermitagemuseum.org>. For a study see Kira Samosyuk 薩莫秀克, “Xixia wangguo de xingxiu chongbai” 西夏王國的星宿崇拜, trans. Xie Jisheng 謝繼勝, *Dunhuang yanjiu* 敦煌研究 4 (2004), pp. 64–70.

¹⁴⁴ Stein no. Ch.lvi.0033, British Museum 1919,0101,0.170.

¹⁴⁵ Russell-Smith makes the same mistake in labeling this “Talisman of the Pole-Star,” in “Stars and Planets in Chinese and Central Asian Buddhist Art,” p. 117.

¹⁴⁶ “Mercury is the child of the Black Emperor in the Northern Direction 辰星者北方黑帝之子.” T 1308, 21: 427B7.

¹⁴⁷ There are several works from Dunhuang that deal specifically with the astrology of the seven-day week. For an outline see Yu Xin 余欣, *Shendao renxin: Tangsong zhi ji Dunhuang minsheng zongjiao shehuishi yanjiu* 神道人心, 唐宋之際敦煌民生宗教社会史研究 (Beijing: Zhonghua Shuju, 2006), pp. 270–75.

¹⁴⁸ Jao Tsung-I 饒宗頤, “Lun qiyao yu shiyi yao” 論七曜與十一曜, in *Xuantang jilin* 選堂集林 (Taipei: Mingwen shuju, 1984), pp. 771–93. See also Niu, “On the Dunhuang Manuscript P.4071,” pp. 527–58.

¹⁴⁹ Gao Guofan 高國藩, “Lun Dunhuang tangren jiuyao suanmingshu” 論敦煌唐人九曜算命術, in *Di-er jie guoji tangdai xueshui yilun wenji* 第二屆國際唐代學術會議論文集 (Taipei: Wensi Chubanshe, 1993), p. 787. Zhao Zhen discusses the relationship of this text to Buddhist literature; Zhao Zhen 趙真, “*Jiuyao xingnian lueshuo yi* P.3779 wei zhongxin” 九曜行年略說以P.3779為中心, *Dunhuangxue jikan* 敦煌學輯刊 3 (2005), pp. 22–35.

Dunhuang documents and Song-era Buddhist literature indicate that the earlier specific interest in astrology within the Buddhist community had declined after the Tang, although astrology itself was still widely appreciated by the literate population. Also during Song times, Faxian 法賢 (d. 1000) translated *Nannijishipoluotian shuo zhilun jing* 難儼計濕嚩囉天說支輪經 (T 1312), that is, **Nandikēśvara-deva Teaches the Zodiac Sūtra*.¹⁵⁰ This short astrology manual describes natal and death predictions based primarily on the twelve zodiac signs and the specific twenty-seven *nakṣatras* subsumed under each zodiac sign.¹⁵¹ This work, however, was not widely studied. It appears that Buddhists had less pressing need to observe astrology as compared to the Tang period, when Mantrayāna required that Buddhists know astrology.

CONCLUSION

This paper has dealt with the extent of Iranian influences in late-Tang astrology – specifically the Buddhist practice as observed in the text of *Qiyao rangzai jue*, a work that has attracted the attention of historians of science but remained largely unstudied in its historical and religious contexts.

Some earlier misconceptions about the nature of its text have been corrected. First, *Qiyao rangzai jue* is not a translation by an Indian monk. It is a composite work comprised of primarily Chinese, Indian and Iranian elements. The Iranian elements are in large part of Hellenistic origin. The purported authorship by a Brahmin monk is clearly a fictional attribution in light of his being said to have summoned the *nakṣatra* deities to gain information. Furthermore, it is a Buddhist text because it prescribes sūtra recitation and directly incorporates significant components of Amoghjavajra's *Xiuyao jing*.

As the historical outline I presented above indicated, foreign astrology in China was almost entirely from Indian sources and motivated by Buddhist concerns until around the last decades of the eighth century, when the Persian Li Su was active at court alongside a certain Li Miqian

¹⁵⁰ Nandikēśvara is another name for Vināyaka/Gaṇapati 歡喜天 (Gaṇeśa) in East Asia, although no details about the deity are given. The name Nandikēśvara for Gaṇeśa is not attested in extant Sanskrit sources. Nandikēśvara, who is not Gaṇeśa, is one of Śiva's retinue. The term *zhilun* 支輪 in the title means zodiac, as corresponding terms in Sanskrit often include *cakra* or *maṇḍala* (*bhacakra*, *tārāmaṇḍala*, *jyotiścakra*, etc.). The first character appears to be used phonetically.

¹⁵¹ The arrangement of *nakṣatras* under the zodiacs is similar to that of *Xiuyao jing*, but the assignments differ, and uniquely Dhaniṣṭhā 虛 is omitted rather than Abhijit 牛, which is otherwise not seen in any extant Indian source.

who, although said to be from western India, was most likely ethnically Iranian. Such foreign or non-Chinese men of Iranian backgrounds introduced Hellenistic astrology into China, and in subsequent decades Iranian elements flowed into the astrology of the late Tang and in the related practices of astral magic and its associated iconography.

The transition from Sino-Indian families of astronomers to the Persian Li Su also marks a shift towards the study of Iranian astronomy, a subject which appears to have had an influence on Cao Shiwei who produced the popular calendar – *Futian li* – which became standard in the practice of astrology during the late Tang. The calendar that was integrated into the text of *Qiyao rangzai jue* appears either to have been *Futian li* itself, or heavily based on it. The Babylonian goal-years in the text most likely were introduced via an Iranian intermediary such as Li Miqian, under whom Cao Shiwei had studied.

Elements traceable to the Near East should force us to consider that in other literatures similar discoveries might be made. Another Buddhist text in which this is likely is *Qiyao xingchen bie xingfa* 七曜星辰別行法 (T 1309), which contains drawings of spirits that are said to cause diseases over the days associated with them. Although clearly drawn in a Chinese fashion, their respective names are phonetic transliterations of an unidentified language.¹⁵²

Further analysis of Dunhuang documents and relevant texts in the Daoist canon in relation to Tang-era developments should be performed, in order to better understand how astrology and related art evolved over time. Further identification of specifically Iranian elements would also shed light on Sino-Iranian relations during the Tang. The presence of several paintings of *Tejaprabhā Buddha and the planetary deities at Khara Khoto suggests that the cult of astral deities was popular among the Tangut people. We know that astrology was practiced by the Tangut court,¹⁵³ and studies along these lines may uncover even more useful insights into astrology during this time period.

¹⁵² My tentative guess at present is that these icons are also from an Iranian source. Icons of the twenty-eight lunar mansions, including some similar to those depicted in T 1309, are also described in the *Picatrix*, though their names and descriptions are different. See Greer and Warnock, trans., *Picatrix*, pp. 286–93. Zoroastrianism had a magical practice of *nērangs* (incantations or charms) that were connected to the invocation of stars and planets. This tradition is the likely foreign source of the material in T 1309. See Antonio Panaino, “Two Zoroastrian *Nērangs* and the Invocation of the Stars and the Planets,” in Touraj Daryaei and Mahmoud Omidshah, eds., *The Spirit of Wisdom: Essays in Memory of Ahmad Tafazzoli* (Costa Mesa, Cal.: Mazda Publishers, 2004), pp. 196–218.

¹⁵³ Kira Samosyuk, “The Planet Cult in the Tangut State of Xi Xia: The Khara Khoto Collection, State Hermitage Museum, St. Petersburg,” *Silk Road Art and Archaeology* 5 (1997/98), pp. 353–68.